Hosseini and Hayatdavoudi, 1986 Data Set 32

Reference: Hosseini, M.S., and A. Hayatdavoudi, 1986, Reservoir characterization of Tuscaloosa Sand by mineralogical and petrophysical data: Society of Petroleum Engineers Formation Evaluation, v. 1, n. 4, p. 584-594.

Author's affiliation: Core Analysis, Inc. and U. of Southwestern Louisiana

Age: Cretaceous

Formation: Tuscaloosa Formation

Location: Deep Tuscaloosa Trend, West Feliciana Parish, Louisiana, United States

Well: Well S/L 8279 No. 1

Depth range: 14649-14707 feet.

Lithology and alteration of zone one: "Zone one consists of upper fine to medium grained, moderately well sorted, nearly matrix-free, well-indurated, and silica-cemented sandstone. Monocrystalline quartz is the most abundant detrital framework grain. … Silica cement, mainly in the form of authigenic quartz overgrowths, is the most abundant cementing material in this zone. Silica cement ranges from 6 to 19% of total rock volume (see tabulation below). Of particular interest to us is the quartz overgrowth, which is well developed on the surfaces of the detrital quartz grains, at times filling a significant amount of former pore spaces."

Lithology and alteration of zone two: "Zone two consists of fine to medium grained, well sorted, nearly matrix-free, and chlorite-cemented sandstone. Framework grain composition is similar to sandstones in Zone 1, with the exception of a small increase in the proportion of the rock fragments. The major differences between Zones 2 and 1 are a lack of any significant amount of quartz overgrowths and the presence of a relatively high amount of authigenic chlorite cement. In thin section, the authigenic chlorite occurs as thin, uniform, green rims that coat all the grains except where the grains are in contact. In SEM, the chlorite rims are observed as euhedral, pseudohexagonal crystals that show a very dense and intricate growth form. The chlorite crystals are arranged in a face-to-edge pattern and are oriented perpendicular to the surfaces of the host grains."

Primary grain mineralogy: Thin section analysis in Table 2 indicates that Zone 1 samples are sublitharenites and Zone 2 samples are litharenites.

Grain size: see table below for mean grain size from point counting 150 grains per sample.

Alteration: "Relative mineral percentages of dominant rock constituents were obtained by a point-count analysis of 300 points per sample." see tabulation below. Note that volume percentages of all constituents, including porosity, add to 100.

Production: not stated.

Core measurement conditions: "Routine core analysis was performed on one-inch diameter horizontally cut core plugs for each foot of the diamond conventional core."

Data entry: manual entry from Tables 1 and 2 of the referenced paper.